

## **METHODOLOGICAL CONTEXT AND DOMAINS OF VALUE CHAIN ANALYSIS FOR POLICY MAKING: CASE IN REPUBLIC OF NORTH MACEDONIA**

**Natasha Daniloska<sup>1\*</sup>, Dimitre Nikolov<sup>2</sup>, Andrijana Velevska<sup>3</sup>**

<sup>1</sup>Ss. Cyril and Methodius University in Skopje, Institute of Economics - Skopje, Republic of North Macedonia, [natasha.daniloska@ek-inst.ukim.edu.mk](mailto:natasha.daniloska@ek-inst.ukim.edu.mk) (\*corresponding author)

<sup>2</sup>Agricultural Academy, Institute of Agricultural Economics, Sofia, Bulgaria

<sup>3</sup>Ministry of Agriculture, Forestry and Water Economy of the Republic of North Macedonia

### **ABSTRACT**

Bringing national agricultural policy in line with the Common Agricultural Policy of EU, among other things, requires an understanding of how local agricultural producers with their production will fit into the EU single market. The general point that needs to be made in this regard is grasping the big picture on how agricultural products move through the value chain on their way to the final consumer. This is important not just for the actors involved, but also for the policy-makers since the logic Common Organisation of Agricultural Markets (CMO) within the EU is to reinforce the economic position of producers in the market. In this sense, analysing impacts of policy options through value chains provides decision makers and other stakeholders with anticipated evidence on likely changes directly induced by policies. The complexity of this task and the need for successful implementation of CMO measures in the Republic of North Macedonia required methodological approach that has been developed within the Project “Introduction and implementation of Common Market Organization measures”. Developed methodological approach that enables assess on quantitative grounds the impacts that policy option have upon certain product (commodity) is presented in this paper.

**Key words:** value chain analyses, policy making, agricultural markets, common market organization.

### **INTRODUCTION**

The term **value chain** refers both to a set of interdependent economic activities and to a group of vertically linked economic agents. Depending on the scope, the focus of the analysis can be on the activities or on the agents themselves. A value chain starts with the production of a primary commodity, ends with the consumption of the final product and it includes all the economic activities undertaken between these phases such as: processing, delivery, wholesaling, retailing, etc.

Vertical integration of the agents and activities provoked systematic studies long ago (Coase, 1937). Researchers' were explaining the existence of firms through analysing how firms and markets substitute each other in governing the transactions between two different stages of a production process, according to the relative cost of procuring a given input. They were also exploring the internal organization of production processes and its relationship with the functioning of the markets, finding out that vertical integration (intra-firm relationships) can be generated by market failures such as imperfect information, excessive bargaining costs or low mutual trust between contracting agents (Williamson, 1971). In later research, vertical integration was seen as a solution for situations where “incomplete” contracts, i.e., contracts among upstream and downstream agents which avoid regulating ex-ante all the possible implications of future contingencies for the two parties, prevent to achieve optimal investment

levels (Grossman & Hart, 1986). Other authors emphasize the role of nations as integrated systems and related governments as factors affecting the competitiveness of firms and businesses. With respect to foreign competitors, acquiring a competitive advantage may not imply, at least in principle, the optimal use of firm's own endowments, but only "outperforming" with respect to others (Porter, 1990).

An important contribution to the literature has been given by the research institutions such as the French National Institute for Agriculture Research (INRA) and the French Agricultural Research Centre for International Development (CIRAD). French researchers in their studies provided profound elaboration of existing agricultural commodity chains through the quantitative analysis of inputs and outputs, prices and value added, summarized in agents' accounts. With their extended research they also complemented technical quantitative relationships with a policy dimension, by appraising the role of public institutions in the development of domestic commodity chains.

Later research in this domain was dedicated to incorporating the international dimension to the analysis of value chains, focused on the power relations and the rule-setting mechanisms (governance) along the value chain in a global perspective (Gereffi, 1994).

In terms of economic theory, the concept of competitive advantage and comparative advantage are often interchangeably used since they refer to specialization of a nation (but this could also apply to firms) in products or partnership (trade). However, in terms of value chain analysis which are aimed for policy making, the existence of competitive advantage is mostly associated to positive private profitability, i.e., the outcome of economic activities as enjoyed by the private agent. The existence of comparative advantage instead is associated to the concept of social profitability, i.e. the economic outcome of an activity enjoyed by the society (the economic system) as a whole.

In the past few years, UN Food and Agriculture Organization (FAO) has applied and adopted the value chain approach as an analytical framework to assess on quantitative grounds the impacts of policy options (Bockel & Tallec, 2005). FAO has performed analyses in a number of countries and developed related capacity development material. The Value Chain Analysis (VCA) approach for policy analysis, as currently applied by FAO, borrows from different strands of economic analysis and related literature and links together all the steps in production, processing, and distribution. Our approach follows the methodology for Value Chain Analysis for Policy Making, developed by FAO, used in carrying out value chain analyses for policy making in various countries. We have also consulted other specific methodological approaches to value chain analysis that could be used for policy making, such as economic development, environment and trade research (Faße *et al.*, 2009), development of agriculture. In this paper we are presenting the context and domains that will enable analysis of portions of economic systems, rather than economic systems as a whole, and thus provide a deeper understanding of the chain structure and functioning by portraying the various chain actors and elements on the canvas of their intricate relationships. In this sense, the paper provides key notions required to carry out analyses of policy impacts by means of a value chain approach predominantly used by FAO.

## **MATERIALS AND METHODS**

The analysis of value chain for policy making presents a methodological challenge due to the complexity of the object being evaluated. For one thing, in agriculture in particular, value chains are complex and open socio-economic multi-level systems, which are subject to dynamic sector contexts and market structures. On the one hand, the analysis needs to provide understanding of the underlying socio-economic processes; on the other hand, consideration must be given to the entire chain in the sense of all actors and each activity. An appropriate methodology therefore needs to address complex causal interdependencies and help in

understanding of the links between the full range of activities and services (actors) required for bringing an agricultural product from its production location, all to the sale on the final market. This methodological approach provides assessment of a portion of an economic system where upstream agents in production and distribution processes are linked to downstream partners by technical, economic, territorial, institutional and social relationships and thus gives relevant information for policy making.

The purpose of VCA for policy making is to provide decision-makers with evidence-based information that relates to sustainable development strategies. Namely, analysing impacts of policy options through value chains provides decision makers and other stakeholders with anticipated evidence on likely changes that would be directly induced by the policies. Concretely, it allows analysts to identify issues (constraints, opportunities, strengths and weaknesses) to be addressed by the policies. Value chain approach used for policy making typically covers the following domains:

- Socio-economic context of the value chain.
- Demand for value chain outputs.
- Analysis of the institutional set-up.
- Analysis of input and output markets.
- Functional analysis of the value chain.
- Economic analysis of the value chain.

Socio-economic context of the value chain analyse, identifies and outlines key elements of the context in which the value chain develops. Socio-economic context also explains how these elements influence the value chain and vice-versa. It examines the macro-economic and the social situation of the country in which the value chain develops, as well as the geo-strategic positioning of the country, including membership in regional organizations etc. It also gives overview of the current policies and strategies affecting the value chain, including price, factor and natural resource policies, specific incentives or disincentives to producers and consumers, macro-economic policies affecting exchange rates and interest rates, credit policies and international trade policies. Its main intention is to give justification for certain public policy.

Demand for value chain outputs analysis looks at the consumer side of a value chain considering the various destinations of the final output(s). The intention is to identify both current and potential (future) domestic and foreign demand for the value chain outputs. Also, it provides insight on the current and potential foreign competitors and the current or potential substitutes that influence prices or volume demanded. Demand analysis helps identify whether the capacities to meet different domestic or international requirements have to be improved and/or the extent to which existing or potential demand could absorb possible supply expansion.

Analysis of the institutional set up is obligatory when designing policies, aimed at developing value chains. This analysis examines the set of interactions taking place among agents and the formal and/or informal rules governing them are a key aspect. In this sense, VCA investigates the role of the state, as well as other institutions in regulating the value chain and creating the legal environment that ensures its functioning.

Analysis of input and output markets refers to analysing domestic and international markets for inputs and outputs. This provides important insights on the way a value chain works and on possible policies to improve its performances. A specific focus on markets allows analysts also to understand agents' behaviour and the institutions governing the value chain because there are close relationships among markets' set-up, rules and agents' choices. This analysis gives insight to the supply side of the chain since it investigates actors and activities that provide output flows in consequence of input flows. Regarding input markets, it analyses trading practices as referring to the commercial relations between the operators in the food supply

chain. At their core lies the sales arrangements, based on a contract or a longer-term contractual framework established between the parties concerned.

Functional analysis of the value chain provides a detailed profile of the industry structure through the identification, description and quantification in physical terms of the sequence of operations concerning commodity production, processing, marketing and final consumption.

Economic analysis builds essentially on the functional analysis and assesses in quantitative terms the value-added creation and distribution processes. Thus, economic analysis provides useful indications to guide choices and support decision making for future strategic chain upgrading interventions. The economic analysis allows analysts to determine, for instance, the value added created by the overall value chain, the value added and margins for each economic agent at each stage of the chain, the value-added distribution among factors (capital: profits, labour: wages, other assets: rents).

Value chain analysis requires large amount of primary data. For collecting primary data for this methodological approach, we used Nonprobability (Subjective) Sample Survey. This surveying method was selected since for the adopted methodology, statistically accurate data is not required and in same time, for many of the needed data, there are no resources for its production.

This survey was used as tools for exploring the overall potential of the individual commodity value chain at three levels-production, trade and consumption. It included all actors and all activities in each level of the value chains.

At production level, field data were collected with mixed interview and questionnaire method. Questionnaire was structured, with closed and open-ended questions and was accompanied with semi-structured interview.

At trade level (wholesale, retail, processing, green markets and super markets) we used interview with In-Depth Interview technique. An In-Depth Interview was designed in manner to provide both specific information and to uncover unexpected details on the level of traders. In-Depth Interviews gathered information on how trader's level of value chain works and why it works that way. At consumption level, on line survey with structured questioner was conducted. Primary data were also collected from other stakeholder in the value chain, especially from state and financial institutions. For this purpose, we used Key Informant Interviews technique. A Key Informant Interview was in a form of consultation with relevant stakeholder (e.g., government official, representative of a financial institution). We interviewed a few well-informed individuals and got an overall perspective of the value chain and information relevant to: market opportunities, constraints in the system, support services, linkages and relationships.

Findings from the primary data collection were vetted with all actors. For this purpose we engaged couple focus group discussion. On the focus groups discussions were considered and seemingly conflicting information that come out from analysis were resolved.

For sample selection, non-probability sampling method was used, based upon two criteria: geographic distribution and economic size of the agents. This type of sample selection is based on the subjective judgment of the researcher rather than random selection. Non-probability sampling is used in studies where it is not possible to draw random probability sampling due to time or cost considerations.

As a sampling technique we used Convenience Sampling, which is a non-probability sampling technique where samples are selected from the population only because they are conveniently available to the researcher. These samples are selected only because they are easy to recruit and researcher did not consider selecting sample that represents the entire population.

## **RESULTS AND DISCUSSION**

Being that the main intention of the VCA for policy making is to give a set of policy recommendations, the task of the in-depth VCA analyses is not to give an all-encompassing single commodity value chain analysis, but rather a general overview of the activities, agents and goods included in the commodity value chain. Using FAO methodology as an underlying concept, supplemented by the collected primary data, within our methodological approach we conducted three types of analysis, that is: stakeholder analysis, structural analysis (including environmental assessment and supply-demand analysis) and functional analysis (including input and output prices). These types of analysis covered all domains needed for VCA for policy making and provided the desired results. Namely, being that value chains are complex sets of interrelated elements (public and private agents, domestic and foreign markets, inputs, outputs, production factors, institutions, environment and natural resources, etc). The above mentioned types of analysis provided sufficient evidence for identification of issues (constraints, opportunities, strengths and weaknesses) to be addressed by policies.

Stakeholder analysis identified all parties involved in the value chain, separately. Stakeholder were categorized according to their influence and this analysis has given an overview of:

- Actors (private parties that have a subsequent position in the value adding process from seed to domestic shelf or to export destinations);
- Supporters (parties that support the value chain in a commercial way (technical suppliers and service providers) or institutional way (business support organisations, trade associations, education, etc.) as well as (international) donors);
- Influencers (parties from the institutional environment such as local and national governments and the international politics).

From socio-economic aspect, stakeholder analysis has considered the geographic location of the value chain and implications for territorial set-up and development (rural-urban relationships, synergies with other activities, role in local production systems etc.). Stakeholder analysis provided sufficient information for in-depth commodity chain analysis in order to assess how the identified and categorized stakeholders should be addressed by policy action, program, or other relevant action. It resulted in comprehensive Stakeholder matrix, identifying all major players, confirm their role and estimate their influence on the agriculture commodity markets.

**Structural analysis** has given overall insights in the way in which value chain operate, as well as the overall insights of the enabling environment. Integral part of this analysis was the examination of the market supply structure, the demand and prices. The structural analysis also observed the environmental impact relevant to value chains (e.g. mono-cropping patterns in vegetable production, geographical concentration of perennials, etc.). Structural analysis resulted in identifying the governance in the sector, the general organization and form of organizations (horizontal and vertical), contractual relations, power relations, regulatory and policy framework in concern to the commodity chain. This analysis has also given an overview of market players for both ends-upstream and downstream.

**Functional analysis** of the value chain provided detailed profile of the chain structure and production technology by identifying, describing and quantifying in physical terms the sequence of operations concerning commodity production, processing, marketing and final consumption and related agents carrying them out.

The functional analysis was based on the primary commodity following it downstream stages and along all the processing stages up to the final commodity, all market intermediaries and final consumers. Functional analysis also investigated the economic indicators that are of major interest in VCA for policy making, such as production costs, value added and productivity. In our functional analysis we distinguish these economic indicators between

upstream and downstream functions. For the upstream functions, we determined the input prices for the supply chain and calculated the effect on the production cost of agricultural products. For the downstream functions, functional analysis identifies the costs for production, as well as related cost and operations such post-harvest treatment, packaging, handling, storage, transport and marketing. Information obtained from the functional analysis, together with the information from the stakeholder analysis resulted in visualization of the relations between actions and actors and produced a chain waterfall diagram, as well as commodity balances.

## CONCLUSIONS

Value Chain Analysis (VCA) provides government policy makers with a systematic tool which allows them to understand the processes and specially to know the cost related to the various steps in the chain. The concept of the value chain simply links together all the steps in production, processing, and distribution and allows us to analyse each step in relation to the preceding steps and the steps that follow.

However, one must bear on mind that VCA for policy making has some limitations. First of all, VCA is usually carried out with reference to a specific accounting period (i.e., a given year), and it does not explicitly consider the impact of time on the variables considered. In this sense, one must bear in mind its lack of time dimension and consider it as "static" framework.

Since this methodological approach produces an in-depth description of a specific segment of the economy, it requires a large amount of data. Yet, it gives only a partial vision of the economy.

Finally, VCA is composed of many steps that need to be carefully undertaken and synchronised in order to identify upstream and down-stream agents, and to quantify the related flows of costs and incomes. This implies that quantitative analyses of value chains have to be associated to a full understanding of the mechanisms, contracts and/or agreements which constitute and regulate the relationships between the upstream and downstream agents.

Having sad its limitations, it is crucial to acknowledge that analyzing a value chain for policy making in reality implies: a) taking stock of the situation of the value chain looking at its different economic, social and environmental dimensions; b) identifying areas of potential improvement of the value chain that can be introduced by means of public policy measures; and c) assessing the likely economic, social and environmental impacts of the available policy options. This implies that VCA for policy making has to examine various, albeit correlated domains of the value chains and identify issues (constraints, opportunities, strengths and weaknesses) to be addressed by policies.

In our research, we have used the methodology for Value Chain Analysis for Policy Making, developed by FAO as an underlying concept for our methodological approach. Given the FAO methodology domains, we conducted three types of analysis: stakeholder analysis, structural analysis (including environmental assessment and supply-demand analysis) and functional analysis (including input and output prices). This approach has allowed us to:

- Identify bottlenecks that deserve priority attention from the government.
- Identify target groups.
- Trace the effects of a policy along the chain of commodities.
- Understand how value added creation and profit earning will change for each agent and the value chain as a whole.
- Identify "winners" and "losers" of a policy measure.

We are confident that findings are sufficient evidence that can guide policy interventions towards the reallocation of resources and support programmes for the benefit of the most vulnerable groups within the chain.

Moreover, value chain analysis is a valuable tool to investigate the role that value chains can play in achieving specific policy objectives, such as sustained growth and inequality reduction.

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